

2.2 GOALS, OBJECTIVES AND STRATEGIES

Goals and objectives are the unifying elements of successful refuge management. They identify and focus management priorities, resolve issues, and link to refuge purposes, Service policy, and the Refuge System Mission.

A CCP describes management actions that help bring a refuge closer to its vision. A vision broadly reflects the refuge purposes, the Refuge System mission and goals, other statutory requirements, and larger-scale plans as appropriate. Goals then define general targets in support of the vision, followed by objectives that direct effort into incremental and measurable steps toward achieving those goals. Finally, strategies identify specific tools to accomplish objectives (USDI 2002).

In the development of a CCP, the Service prepares an Environmental Assessment, which evaluates alternative sets of management actions. Alternatives are different sets of objectives and strategies.

The goals for the Turnbull Refuge over the next fifteen years under the CCP are presented below. Each goal is followed by the objectives that pertain to that goal. Some objectives pertain to multiple goals and have simply been placed in the most reasonable spot. Similarly, some strategies pertain to multiple objectives.

Readers, please note the following:

- ✓ The objective statement as written is the objective statement that applies to the preferred alternative, Alternative 3.
- ✓ Italicized text in the objective statement indicates specific items that vary in the other alternatives. How those items vary is displayed in the short table under each objective statement; as applicable, each other alternative shows substitute text for the italicized item or items.
- ✓ If an objective is not included in a particular alternative, a long dash, marked as follows — is used to indicate that this objective is

absent from that alternative.

Finally, below each objective statement are the strategies that could be employed in order to accomplish the objectives. Again, note the following:

- Check marks alongside each strategy show which alternatives include that strategy.
- If a column for a particular alternative does not include a check mark for a listed strategy, it means that that strategy will not be used in that alternative.

Only new objectives and strategies that were developed during the CCP planning process are listed here. Objectives developed for the Refuge Habitat Management Plan are listed here, but not explained, partly because the NEPA document analyzing those objectives was completed in 1999 and partly because these objectives are part of the current Refuge management direction regardless of which CCP alternative is chosen. The complete text of the HMP objectives, strategies, and guild management guidelines can be found in Appendix B. The FMP objectives and strategies were not restated here nor in Appendix B as that plan is primarily an operational plan dealing with wildfire suppression, fire prevention, and prescribed fire. The goals, objectives and strategies listed in that plan should be treated within that context only. The FMP objectives prevail over all other Refuge objectives for fire suppression, firefighter safety, life and property protection in case of wildfire. When not dealing with fire suppression situations, HMP or CCP objectives supercede FMP objectives when there is any conflict in habitat type objectives.

GOAL 1: **Contribute to protection of local watersheds to maintain adequate water quality and quantity for native Refuge wetland species.**

Objectives 1A through 1D were developed as part of the HMP. They can be found in greater detail in Appendix B.

OBJECTIVE 1A. WATER RIGHTS REVIEW

OBJECTIVE 1B. WETLANDS WATER LEVEL MONITORING

OBJECTIVE 1C. WATER YIELD OF REFUGE WATERSHEDS

OBJECTIVE 1D. WATERSHED QUALITY COORDINATION

OBJECTIVE 1E. WATER AND LAND CONSERVATION: In partnership with private landowners, other federal agencies, local and state governments, and private organizations, the Service will work *to protect the water resources supporting Refuge wetlands and wildlife, and will protect, conserve, and restore wetland, steppe, and forest habitats in the Refuge vicinity.*

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
protection of water resources mainly	as above (strategies vary below)	as above (strategies vary below)	as above (strategies vary below)

Strategies	Alternative			
	1	2	3	4
<ul style="list-style-type: none"> Designate informal Stewardship Area of approximately 44,536 acres surrounding Refuge-owned lands. The intent of the Stewardship Area is to encourage voluntary and cooperative protection and restoration of high and medium quality habitats, and to protect water quality and quantity within the surface and ground watersheds affecting the Refuge. Work with neighboring landowners and partners utilizing tools such as conservation easements, enrollment in the Wetlands Reserve Program, well capping, and technical assistance to achieve Stewardship aims. 	21,396	✓	✓	✓
<ul style="list-style-type: none"> Via Director approval, implement Land Protection Plan (Appendix A) and establish new Approved Refuge Boundary to the extent of the Stewardship Area. 			✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, the Service shall seek to protect, as part of the National Wildlife Refuge System, up to 12,000 additional acres of 1st and 2nd order priority lands, as identified in the Land Protection Plan, from willing sellers, through fee, easement, or agreement. 			12,000	25,000
<ul style="list-style-type: none"> Hire staff person to conduct intensive outreach to achieve habitat conservation objectives by voluntary and cooperative means within Stewardship area. Partner with Ecological Services as needed. 		✓	✓	✓
<ul style="list-style-type: none"> Encourage the State of Washington to address habitat protection needs of the Channeled Scablands as part of the State Comprehensive Wildlife Conservation Plan (required to be completed by October 2005 to maintain eligibility for State Wildlife Grants). 	✓	✓	✓	✓

Rationale for preferred objective and strategies:

Refuge wildlife are connected to and depend upon the larger landscape. The Turnbull NWR comprises one of the only protected areas within the Channeled Scablands. Most of the original habitats of the Scablands have been highly altered, as detailed in Chapter 3. Yet the potential of the Scablands to support biodiversity is quite high; as one example, wetland basin density rivals that of the Prairie Pothole region and at intact sites, waterfowl production exceeds that of the Potholes (see Chapter 3 of this document, Sections 3.2 and 3.1, and the Refuge Habitat Management Plan [USDI 1999] for more detail). The intermingling of four different habitat types in such close proximity creates conditions of unique habitat diversity.

Some attendees at the public alternatives workshop in June, 2002 were interested in developing the voluntary stewardship idea. A Stewardship Area helps to raise public awareness of the unique conservation value of these lands and the roles that can be played by both public and private sector entities in conservation. This awareness in turn could potentially lead to decisions by multiple private landowners, the State, and other conservation partners (i.e. The Nature Conservancy, Inland Northwest Land Trust, and others) to recognize this area as a priority area for the protection and enhancement of habitats; conservation and management of water, and restoration of drained wetlands. Thus, conservation benefits could potentially be realized in a very efficient manner. The proposed Stewardship Area extends to the boundary of the Study Area used in the EA. It encompasses lands in varying conditions. The distribution and quality of wetland, aspen / riparian, ponderosa pine, and Palouse steppe habitats within this area is mapped and discussed in Chapter 3, and analyzed further in Chapter 4 of this Draft CCP/EA.

Protection under the Refuge System of up to 12,000 acres of land within the proposed new Approved Refuge Boundary will assist in sustaining the values of the highest quality lands within the Study Area, including the lands most important for surface and ground water quality and quantity protection; the lands with superior pine, aspen and/or steppe habitats; and the lands most feasible for restoration of wetlands.

Protection and restoration, using the variety of tools proposed under Alternative 3, and in partnership with neighbors and interested conservation partners, will greatly contribute to the long term maintenance of environmental health and biodiversity in this area of Washington. See Land Protection Plan in Appendix A for further details.

OBJECTIVE 1F. IMPROVE WATER QUALITY AND QUANTITY: Work to ensure current or improved levels of the quality and quantity of water entering the Refuge from the four major drainages (Company, Kaegle, Phillips, and Philleo) so as to manage existing Refuge wetlands at objective levels identified in the Habitat Management Plan.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
as above	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> Complete water quality study in progress. Conduct similar study at five year intervals to determine if water quality entering Refuge is improving. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Partner with landowners, County, Natural Resources Conservation Service and Department of Ecology outside Refuge ownership boundaries, but with particular focus within Stewardship Area, to implement measures that could conserve water quality and quantity. Such measures may include: distribution of information about best management practices, enrollment in the Wetlands Reserve Program, and other conservation practices; provision of technical assistance or matching funds for conservation and restoration work, etc. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓
<ul style="list-style-type: none"> Encourage land trusts such as The Nature Conservancy, Trust for Public Lands, and Inland Northwest Land Trust to work actively within the Channeled Scablands and especially within the Stewardship Area to conserve lands. 		✓	✓	✓
<ul style="list-style-type: none"> Together with partners, monitor groundwater resources through the placement of monitoring wells and use of the piezometer well identified in the HMP. 		✓	✓	✓
<ul style="list-style-type: none"> Consider a study on groundwater resources, to investigate the hypothesis that there has been a drop in well levels from historic to current times. 		✓	✓	✓

Rationale for preferred objective and strategies:

Maintaining adequate water quantity flowing into the Refuge is essential for wetlands to function as primary breeding and foraging habitats for all species that may potentially use these habitats. Because of the regional nature of the drainage system, Turnbull NWR is dependent on inflow of water to supply and manage its wetlands.

The proximity and growth of Spokane, Cheney, and other communities in the Spokane metropolitan area has the potential to affect the quality of both groundwater and surface run-off waters. Septic systems continue to be the primary method of domestic waste disposal in the area. Increased septic system loading increases the potential for non-point source pollution of groundwater that ultimately feeds Refuge wetlands.

Water quality has been a concern for the Refuge for some time. During the last 11 years, two studies of water quality around and on the Refuge were completed. The 2002 study found the highest nutrient concentrations in the subwatersheds with the greatest area in dairy and/or dryland farming (see Chapter 3, Section 3.1). Left unresolved, water quality problems will degrade Refuge wetland habitats and other habitats downstream.

GOAL 2: Provide habitat conditions essential to the conservation of migratory birds and other wildlife within a variety of wetland complexes.

Objectives 2A through 2F were developed as part of the HMP. They can be found in greater detail in Appendix B.

OBJECTIVE 2A. OPEN WATER ACREAGE

OBJECTIVE 2B. EMERGENT PLANT STRATA PERCENT

OBJECTIVE 2C. WATER DEPTHS IN EMERGENT PLANT ZONE

OBJECTIVE 2D. RESTORATION OF NATURAL HYDROLOGY

OBJECTIVE 2E. RESTORATION OF NATURAL BASINS TOPOGRAPHY

OBJECTIVE 2F. REED CANARYGRASS CONTROL

OBJECTIVE 2G. RESTORE WETLANDS: Strive to maintain existing and restore additional wetland habitat to benefit key wetland indicator species.

- Within the Stewardship Area, protect or restore *up to 7,110 acres* of wetlands through voluntary partnerships and stewardship activities.
- Within new Approved Refuge Boundary, protect, as part of the National Wildlife Refuge System, *up to 2,156 acres* of wetland habitat from willing sellers only.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Stewardship Area - up to 393 acres Protection by NWRS - 0 acres	Stewardship Area - up to 7,110 acres Protection by NWRS - 0 acres	Stewardship Area - up to 7,110 acres Protection by NWRS - up to 2,156 acres	Stewardship Area - up to 7,110 acres Protection by NWRS - up to 4,491 acres

Strategies	Alternative			
	1	2	3	4
<ul style="list-style-type: none"> Throughout Stewardship Area, work with landowners to encourage wetlands restoration activities. Provide education on the values of wetlands through outreach programs; provide technical assistance as feasible; and provide information to landowners on technical and financial assistance programs available through federal, state, or local agencies and private organizations. 	✓	✓	✓	✓
<ul style="list-style-type: none"> With partners, prepare interpretive brochure describing wetlands restoration desired outcomes and techniques. Use brochure for field trips, outreach activities, etc. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓

Rationale for preferred objective and strategies:

Approximately 7,110 wetland acres are found within the Study Area outside of the Refuge ownership, of which 5,006 acres are drained. The potential of the Channeled Scablands vicinity to support wetland habitats and species is very high. Analysis shows that the Channeled Scablands rival or exceed the Prairie Pothole Region for wetland depth, size, and abundance in almost every wetland type category (see further discussion, Chapter 3). Additionally, the Channeled Scablands have a greater proportion of the total area in wetlands. In areas such as the Refuge where the wetland complex is still intact, duck breeding pair densities of several species is actually greater than in the Prairie Pothole region, which is globally known for its waterfowl production.

Positive conservation action is needed, however, to realize these habitat benefits. As the situation currently stands, most of these wetland acres have been drained and now provide only ephemeral habitat for wetland dependent species.

Key wetland indicator species are listed in the Refuge Habitat Management Plan (USDI 1999).

See Land Protection Plan in Appendix A for further details.

OBJECTIVE 2H. IDENTIFY AND PROTECT VERNAL POOLS: Identify locations of high quality and intact rare vernal pool habitat within Stewardship Area and strive to further protect these areas.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
as above	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> In cooperation with landowners, inventory grassland areas within the Stewardship Area to ascertain vernal pool presence. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Throughout Stewardship Area, work with landowners to encourage vernal pool protection. Provide information on the values of vernal pools through outreach programs; provide technical assistance as feasible; and provide information to landowners on technical and financial assistance programs available through federal, state, or local agencies and private organizations. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓

Rationale for preferred objective and strategies:

Vernal pools, typically located in the biscuit and swale steppe habitat of the Channeled Scablands region, warrant special consideration. These vernal pools occur in shallow depressions with a perched water table. Standing water is usually present for less than two months in most years. Because of the relatively short lived nature of these wetlands they are host to a unique plant and animal community.

Because of their small size and ephemeral nature, most vernal pools are not readily detectable with remote sensing imagery and have been largely overlooked by the National Wetlands Inventory. Because of this, their actual locations in the Study Area are generally unknown.

GOAL 3:

Restore Refuge aspen and ponderosa pine forests to a natural distribution of stand structural and successional stages to benefit forest dependent wildlife.

Objectives 3A through 3D were developed as part of the HMP. They can be found in greater detail in Appendix B.

OBJECTIVE 3A. RESTORATION OF PONDEROSA PINE**OBJECTIVE 3B. SNAG RECRUITMENT****OBJECTIVE 3C. ASPEN / RIPARIAN RESTORATION WITHIN CLIMAX PINE STANDS****OBJECTIVE 3D. COARSE WOODY DEBRIS**

OBJECTIVE 3E. REDUCE ELK DAMAGE: In cooperation with the State, undertake actions to reduce elk damage to Refuge habitats. In particular, ensure that damage to Refuge aspen groves does not exceed levels above which aspen stands cannot be regenerated or sustained.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
as above	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Continue work to identify a sound indicator for measuring the damage to aspen habitats. Investigate use of percent of current annual growth (CAG) browsed or percent of twigs browsed. Utilize Albrecht (2003) study.	✓	✓	✓	✓
• Continue discussions with Washington Department of Fish and Wildlife to share elk information, including herd population estimates, reports of on-refuge and off-refuge damage, and viable methods for reducing elk numbers.	✓	✓	✓	✓
• Consider a variety of tools to reduce elk population numbers or damage, including relocation, implant of reproduction inhibiting chemicals, working with private landowners, and other methods as feasible. (Hunting would be employed as a tool under Alts. 2, 3, and 4 - see Objective 7M).		✓	✓	✓
• Monitor aspen habitats annually using established indicator.	✓	✓	✓	✓
• Monitor and track seasonal shifts in elk populations and distribution on Refuge.	✓	✓	✓	✓
• Encourage Washington State University continuation of Master's level theses dealing with elk / aspen interactions.		✓	✓	✓

Rationale for preferred objective and strategies:

Research underway by the State and Eastern Washington University indicates that the Refuge is important to the local elk population as security cover. As a result, there has been heavy browsing of young aspen and other deciduous shrubs and trees on the Refuge. In addition, several neighbors have complained of elk damage to their hay, other agricultural crops, fences, and ornamental shrubs since the early 1990s and feel that the Refuge should take a more active role in limiting elk numbers. Since 1992, two claims have been paid by the State for elk damage to agricultural crops. Complaints have declined since 1999 after several local landowners began leasing their lands for hunting.

Aspen stands typically regenerate themselves after disturbance by producing new shoots, also called suckers. A high level of elk browse on an aspen stand can ultimately impede the stand's capacity to regenerate and grow into a mature stand. Current literature was reviewed to investigate the issue of how much elk use on aspen is sustainable or in other words, does not impede a stand's regeneration and capacity to grow into a mature stand. A set of management recommendations for regenerating aspen stands, published by Bates et. al. (2002) indicates that 4000-5000 well-spaced suckers per acre at age two is adequate for regenerating the stand, though a higher number of suckers per acre is desirable for unexpected losses from disease or injury. Other authors, including Debye (1985) and Campbell et. al. (2001) have recommended retaining at least 500 stems per acre at year 6 or when the aspen close is approximately 2.5 meters tall.

The Refuge maintains twelve study plots in aspen habitat. Albrecht (2003) investigated aspen regeneration under variable elk use on the Refuge and discovered that aspen in areas where elk concentrate are much more intensively browsed. Specifically, he discovered that in areas categorized as "low-use" by elk, less than 20% of the stems under 2.5 meters tall received moderate to high intensity browsing. This appeared to be an acceptable level in that these stands were showing recruitment of an adequate number of stems per acre.

Management that reduces elk densities in an area during the winter by either removal or redistribution can decrease browsing intensity enough to allow aspen escapement and height growth beyond the reach of elk. Hunting can be an effective elk population management strategy. Because of the high proportion of leased private land and current no hunting areas such as the Refuge and several private tracts, limited elk hunting opportunities exist in the Refuge vicinity.

See also Objective 7M, Initiate a High-Quality Elk Hunting Pilot Program.

OBJECTIVE 3F. PROTECT ASPEN HABITAT: Strive to protect and restore additional aspen and deciduous shrub habitat to benefit key aspen indicator species.

- Within the Stewardship Area, protect and restore *up to 380 acres* of aspen through voluntary partnerships and stewardship activities.
- Within new Approved Refuge Boundary, protect, as part of the National Wildlife Refuge System, *up to 115 acres* of aspen habitat from willing sellers only.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Stewardship Area - up to 243 acres Protection by NWRS - 0 acres	Stewardship Area - up to 380 acres Protection by NWRS - 0 acres	Stewardship Area - up to 380 acres Protection by NWRS - up to 115 acres	Stewardship Area - up to 380 acres Protection by NWRS - up to 240 acres

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> Throughout Stewardship Area, work with landowners to encourage stewardship and restoration of aspen groves and deciduous shrub riparian habitats. Provide education on the wildlife values of aspen habitat through outreach programs, provide technical assistance as feasible, and provide information to landowners on technical and financial assistance programs available through federal, state, or local agencies and private organizations. Integrate outreach and assistance programs with the Wildland Urban Interface program (WUI) and funds as per the National Fire Plan. 		✓	✓	✓
<ul style="list-style-type: none"> With partners, prepare interpretive brochure describing aspen restoration desired outcomes and techniques. Use brochure for field trips, outreach activities, etc. 		✓	✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓

Rationale for preferred objective and strategies:

Although aspen occurs in small amounts relative to other habitats within the Study Area, it is important to a large portion of the local wildlife, particularly neotropical migratory songbirds. Almost 75% of the aspen stands within the Study Area are considered high quality (deduced from aerial photo interpretation). Cover type mapping completed by the Refuge in 1992 indicated that the area occupied by aspen and deciduous shrub riparian habitats had been reduced by approximately 65 percent from previously. Causes for this decline included competition by encroaching ponderosa pine, clearing for pasture improvement, and finally by livestock and elk browsing which suppresses aspen and shrub regeneration. Simplification of habitat structure in aspen (loss or suppression of understory shrubs, grasses, forbs, and regenerating trees, as well as loss of snags) reduces the suitability of this habitat for shrub and tree cavity nesters and cavity using wildlife species. Human development nearby also encourages competitive or predatory wildlife such as starlings, house sparrows, racoons, and cats.

Key aspen indicator species are listed in the Refuge Habitat Management Plan (USDI 1999).

See Land Protection Plan in Appendix A for further details.

OBJECTIVE 3G. PROTECT PONDEROSA PINE HABITAT: Protect and restore additional ponderosa pine forest habitat to benefit key pine indicator species.

- Within the Stewardship Area, protect and restore *up to 20,090 acres* of ponderosa pine habitat through voluntary partnerships and stewardship activities.
- Within new Approved Refuge Boundary, protect, as part of the National Wildlife Refuge System, *up to 6,092 acres* of ponderosa pine habitat, from willing sellers only.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Stewardship Area - up to 10,176 acres Protection by NWRS - 0 acres	Stewardship Area - up to 20,090 acres Protection by NWRS - 0 acres	Stewardship Area - up to 20,090 acres Protection by NWRS - up to 6,092 acres	Stewardship Area - up to 20,090 acres Protection by NWRS - up to 12,691 acres

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> Within Stewardship Area, work with landowners to encourage conservation and restoration activities for ponderosa pine forests. Provide information on the values of pine forests through outreach programs; provide technical assistance for restoration as feasible; and provide information to landowners on technical and financial assistance programs available through federal, state, or local agencies and private organizations. Integrate outreach and assistance programs with the Wildland Urban Interface program (WUI) and funds as per the National Fire Plan. 		✓	✓	✓
<ul style="list-style-type: none"> With partners, prepare interpretive brochure describing pine forest restoration desired outcomes and techniques. Use brochure for field trips, outreach activities, etc. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓

Rationale for preferred objective and strategies:

The Study Area contains approximately 20,090 acres of ponderosa pine forest. Nearly all large diameter open stands of ponderosa pine forest have been harvested from large regions of Oregon, Washington, and Idaho. Ponderosa pine provides valuable wildlife habitat in its large-diameter late-seral stage. Timber harvest has severely affected these habitat types because of the high value of the trees and the fact that, located at lower elevations, these habitats have been more accessible than higher elevation types. Fire exclusion has also played a role in the loss of this habitat, resulting in a gradual shift in stand composition from shade-intolerant tree species such as ponderosa pine to shade-tolerant species such as Douglas-fir and grand fir. See further discussion in Chapter 3, Section 3.2.

The late-seral ponderosa pine cover type has declined throughout its range in the Columbia Basin but portions of the Basin show declines that are particularly severe. In the Northern Glaciated Mountains Ecological Reporting Unit (ERU) which measures 17.6 million acres and includes part of the northeast section of the Study Area, late-seral, single layer ponderosa pine has declined from historic levels by over 99 percent. In the Columbia Plateau ERU (24.3 million acres), where the rest of the Study Area is located, late-seral, single layer ponderosa pine has declined from historic levels by over 93 percent (Hann et al. 1997).

Conservation and restoration of large diameter pine forests is necessary in order to protect and restore habitats for the unique suite of species reliant on such forests.

Key ponderosa pine indicator species are listed in the Refuge Habitat Management Plan (USDI 1999).

See Land Protection Plan in Appendix A for further details.

GOAL 4: Protect and restore the natural distribution and diversity of grassland and shrub steppe habitats to benefit wildlife.

Objectives 4A through 4D were developed as part of the HMP. They can be found in greater detail in Appendix B.

OBJECTIVE 4A. LITTER COVER PERCENT

OBJECTIVE 4B. ENCROACHING PINES REMOVAL

OBJECTIVE 4C. EXOTIC PLANT SPECIES CONTROL

OBJECTIVE 4D. IDENTIFICATION OF INTACT GRASSLAND AND STEPPE

OBJECTIVE 4E. PROTECT PALOUSE STEPPE HABITAT: Strive to protect and restore additional Palouse steppe habitat to benefit key steppe indicator species.

- Within the Stewardship Area, protect and restore *up to 11,955* of Palouse steppe habitat through voluntary partnerships and stewardship activities.
- Within new Approved Refuge Boundary, protect, as part of the National Wildlife Refuge System, *up to 3,637 acres* of Palouse steppe habitat from willing sellers only.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Stewardship Area - up to 7,141 acres Protection by NWRS - 0 acres	Stewardship Area - up to 11,955 acres Protection by NWRS - 0 acres	Stewardship Area - up to 11,955 acres Protection by NWRS - up to 3,637 acres	Stewardship Area - up to 11,955 acres Protection by NWRS - up to 7,577 acres

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> • Within Stewardship Area, work with landowners to encourage Palouse steppe protection and restoration activities. Provide information on the values of steppe through outreach programs; provide technical assistance as feasible; and provide information to landowners on technical and financial assistance programs available through federal, state, or local agencies and private organizations. 		✓	✓	✓
<ul style="list-style-type: none"> • Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓

Rationale for preferred objective and strategies:

Nearly 90 percent of the original Palouse Prairie steppe habitat has been converted to dryland farming (Cassidy et al. 1997a). The extent of this loss places this ecosystem on the list of critically endangered ecosystems in the United States (Noss et al. 1995) and the Washington GAP Analysis authors rated Palouse steppe as the highest conservation priority in the State.

Key steppe indicator species are listed in the Refuge Habitat Management Plan (USDI 1999).

GOAL 5:

Support the conservation of threatened and endangered species in their natural ecosystems.

Objectives 5A through 5E were developed as part of the HMP. They can be found in greater detail in Appendix B.

OBJECTIVE 5A. HOWELLIA RESEARCH AND MONITORING

OBJECTIVE 5B. HOWELLIA PRECAUTION

OBJECTIVE 5C. REDUCTION OF REED CANARYGRASS COMPETITION

OBJECTIVE 5D. HOWELLIA EDUCATION

OBJECTIVE 5E. HOWELLIA HABITAT PROTECTION

OBJECTIVE 5F. CONSERVE WATER HOWELLIA HABITAT: Protect *up to 885 acres* of potential water howellia habitat within the Stewardship Area and/or *up to 511 acres* within new Approved Refuge Boundary to support recovery efforts identified in the Draft Water Howellia Recovery Plan (Shelly and Gamon 1996).

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Stewardship Area - up to 454 acres Protection by NWRS - 0 acres	Stewardship Area - up to 885 acres Protection by NWRS - 0 acres	Stewardship Area - up to 885 acres Protection by NWRS - up to 268 acres	Stewardship Area - up to 885 acres Protection by NWRS - up to 559 acres

Strategies	Alternative			
	1	2	3	4
<ul style="list-style-type: none"> Within Stewardship Area, work with landowners to encourage conservation of water howellia. Provide information on identification of the plant in outreach programs; provide technical assistance as feasible; and provide information to landowners on technical and financial assistance programs available through Natural Resources Conservation Service, private partners, or the Service's Private Lands Program. 		✓	✓	✓
<ul style="list-style-type: none"> Within new Approved Refuge Boundary, acquire lands from willing sellers as funds become available. 			✓	✓

Rationale for preferred objective and strategies:

Small, semi-permanent wetlands on the the Refuge and within the near vicinity support one of the largest known metapopulations of water Howellia within its range (Shelly and Gamon 1996). Although very little of its potential habitat has been surveyed in the Refuge vicinity, there are numerous wetlands within that have the same habitat attributes as the known occurrences on the Refuge. Expanding the number of protected sub-populations would further conserve this meta-population.

OBJECTIVE 5G. PROTECT SPALDING’S SILENE HABITAT: Endeavor to protect *up to 6,502 acres* of potential Spalding’s Silene habitat within the Stewardship Area and/or *up to 1,971 acres* within the new Approved Refuge Boundary in support of recovery for this species.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Stewardship Area - up to 4,256 acres Protection by NWRS - 0 acres	Stewardship Area - up to 6,502 acres Protection by NWRS - 0 acres	Stewardship Area - up to 6,502 acres Protection by NWRS - up to 1,971 acres	Stewardship Area - up to 6,502 acres Protection by NWRS - up to 4,107 acres

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Implement all recovery actions that are appropriate and can be undertaken at Turnbull NWR.		✓	✓	✓
• Actively promote conservation of Palouse steppe habitat through outreach and education programs.		✓	✓	✓
• Protect potential Spalding’s silene habitat through acquisition from willing sellers as funds become available.			✓	✓

Rationale for preferred objective and strategies:

Spalding’s silene, also known as Spalding’s catchfly, was recently listed as a threatened species under the Endangered Species Act. The species has been documented on the Refuge and 28 populations have been identified in eastern Washington (Spokane, Lincoln, Whitman, and Asotin counties). This species is primarily restricted to Palouse steppe habitat. Actions undertaken by the Refuge to promote conservation of Palouse steppe habitat could also aid in the long term recovery of this species.

GOAL 6:

Support the maintenance of biologically effective landscape linkages and corridors between the refuge and other intact areas of vegetation zones representative of this ecoregion.

Objectives 6A through 6B were developed as part of the HMP. They can be found in greater detail in Appendix B.

OBJECTIVE 6A. PARTICIPATION IN COUNTY AND MUNICIPAL PLANNING

OBJECTIVE 6B. MAINTENANCE OF NATIVE LAND COVER

GOAL 7: Foster appreciation and support of the Refuge and the Channeled Scablands ecosystem through quality environmental education, interpretation, wildlife-dependent recreation, and outreach compatible with the Refuge purposes and mission.

OBJECTIVE 7A. PROVIDE QUALITY ENVIRONMENTAL EDUCATION PROGRAM ON-REFUGE:

Provide a quality, on-site environmental education program for 8,000 - 10,000 students and citizens annually. This program shall emphasize the wildlife and habitat of the Channeled Scablands as well as the role and importance of national wildlife refuges. The on-Refuge environmental education program shall:

- focus on community groups and schools within 150 miles;
- tier to (or achieve) Washington state educational objectives;
- incorporate specific learning objectives and utilizes audience-appropriate curricula;
- feature class *facilitation balanced between Refuge staff, teachers, volunteers, and partners*; and
- be coordinated by a *permanent full time Environmental Education Specialist*.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
3,000 - 8,000 50 miles sometimes facilitated	4,000 - 8,000 50 miles volunteer facilitated	8,000 - 10,000 150 miles facilitation balanced between staff, teacher, volunteer and partners	8,000 - 12,000 150 miles facilitation balanced between staff, teacher, volunteer and partners
volunteer coordinators from AmeriCorps	seasonal Environmental Education Specialist	permanent full-time Environmental Education Specialist	permanent full-time Environmental Education Specialist

Strategies	Alternative			
	1	2	3	4
• Every two years, review EE curricula with focus group of educators at primary, secondary, and university levels. Update curricula and materials as necessary to ensure specific, age-appropriate learning objectives are articulated and that proper emphasis is placed on Refuge System, current ecosystem science of Channeled Scablands, current management issues, and adherence to current State environmental education standards.			✓	✓
• Design all instructional materials to encourage development of a environmental ethic and commitment to land stewardship in addition to conveying scientific knowledge.	✓	✓	✓	✓
• Consider membership in a statewide environmental education consortium, with the Refuge program emphasis on Channeled Scablands and Eastern Washington ecosystems.			✓	✓
• Establish permanent, full time Environmental Education Specialist position.			✓	✓
• Establish a permanent seasonal Environmental Educational Specialist position.		✓	✓	✓
• Establish temporary park rangers for EE program.			✓	✓
• Hold 2 to 4 teacher workshops per year to train educators and facilitators.	0-2	0-2	2-4	4+

Rationale for preferred objective and strategies:

The Refuge EE program has been active for over 30 years. Based on feedback conducted through CCP scoping, the Service recognizes that of all the public services the Refuge provides, the EE program is probably the most highly valued by the public. Many people support an expanded EE program. We feel it is imperative to ensure that this program receive the staff and funding emphasis that will ensure quality environmental educational opportunities for a diversity of students and community groups for the next 15 years.

OBJECTIVE 7B. EXPAND ENVIRONMENTAL EDUCATION FACILITIES: Within seven years, expand the existing EE facility to allow use by *two groups* at a time. Provide *two adjoining classrooms*, accommodating *50 people each*, which can be combined to create a multipurpose room for 100.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
One group one classroom 35 people	One group one classroom 50 people	Two groups two classrooms 50 people each	Two groups two classrooms 50 people each new facility

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Explore funding opportunities such as a capital campaign, etc.		✓	✓	✓
• Maintain a vault toilet at each EE site, and maintain parking areas to accommodate buses.	✓	✓	✓	✓
• Establish a permanent shelter at each EE site.		✓	✓	✓
• Maintain four field EE sites, with one in rest /rotation at all time.	✓	✓	✓	✓
• Add a fifth field EE site if necessary.			✓	✓
• Ensure all EE facilities and field sites are accessible to individuals with disabilities.	✓	✓	✓	✓
• Build new facility				✓

Rationale for preferred objective and strategies:

Existing environmental education facilities have worked well in the past, but they limit the potential of the program. There is a need to be able to schedule two classes at a time. Expanded classroom facilities will provide an opportunity for presentations and educational activities for larger audiences. The public is very supportive of the environmental education program and would like to see more activity in this area.

OBJECTIVE 7C. PROVIDE ENVIRONMENTAL EDUCATION PROGRAM OFF-REFUGE: Provide an off-Refuge environmental education program to community groups and schools that fosters understanding, appreciation and support for Refuges, and the habitat and wildlife of the Channeled Scablands ecosystem. The off-Refuge environmental education program shall:

- be coordinated by a *staff Environmental Education Specialist*.
- complement on-Refuge environmental education opportunities;
- reach audiences not reached by on-Refuge programs;
- focus on groups and schools within an hour's drive;
- reach 3,000 to 4,500 individuals (120-180 classes) annually, at least 20 percent of these from non-traditional audiences;
- include at least 25 percent facilitated educational opportunities;
- incorporate Washington state educational objectives; and
- incorporate specific learning objectives and utilize audience-appropriate curricula.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
volunteer coordinator 500-1,500 individuals (20-60 groups) not facilitated	volunteer coordinator 1,200-1,800 individuals (48-72 groups) 10% facilitated	staff EE specialist 3,000- 4,500 individuals (120-180 groups) 25% facilitated	staff EE specialist 4,000-7,000 individuals (160-280 groups) 25% facilitated

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Maintain lending library of EE materials (videos, skins, curriculum guidelines, etc.).	✓	✓	✓	✓
• Recruit retired teachers and other volunteers for off refuge facilitated opportunities.	✓	✓	✓	✓
• Coordinate this program closely with the on-refuge EE program. In general, implementing the on-refuge program will benefit the off-Refuge program as well.		✓	✓	✓
• Post curricula and other learning materials on the Refuge web site.			✓	✓
• Actively advertise off-refuge environmental education program to teachers, schools, and other groups.			✓	✓

Rationale for preferred objective and strategies:

Off-refuge educational programs can greatly expand the level of awareness and knowledge of the Refuge and the Channeled Scablands ecosystem. The Refuge can accommodate only 125 students per day on site, but many more students per day could potentially learn about the wildlife and aquatic ecology of the Channeled Scablands through off-site programs, especially those provided through a lending library. Even with these programs, however, the Refuge would aim to have at least 25 percent of the off-refuge programs facilitated, as staff has found that facilitated programs are generally more effective at achieving the learning objectives.

OBJECTIVE 7D. DEVELOP CULTURAL RESOURCES INTERPRETIVE AND EDUCATION PROGRAM:

In partnership with the Spokane, Coeur d'Alene, Colville, and Kalispel Tribes, historical societies, and other preservation partners, develop a program for the education and interpretation of cultural resources of the Refuge that:

- instills an ethic for the conservation of our cultural heritage;
- promotes an appreciation for the Native American culture and perspective on cultural resources;
- translates the results of cultural research into media that can be understood and appreciated by a variety of people; and
- relates the connection between cultural resources and natural resources and the role of humans in the environment.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
---	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Consult with the Tribes, historical societies, and other preservation partners to identify the types of cultural resource information appropriate for public interpretation.		✓	✓	✓
• Prepare interpretive media (e.g., pamphlets, signs, exhibits) that depict Native American and Euroamerican cultural resources on the Refuge.			✓	✓
• Develop lending library of education materials for use in local schools and museums concerning cultural resources, the discipline of archaeology, the perspective of Native Americans, Euroamerican settlement history, and conservation of cultural resources. These materials could include an artifact replica kit with hands-on activities and curriculum prepared in consultation with the local school district, historical societies, and the Tribes.			✓	✓
• Develop an outreach program and materials so that the cultural resource messages become part of cultural events in the area, including: Washington Archaeology Month, National Wildlife Refuge Week, and appropriate local festivals.			✓	✓
• Create storage and use plans for museum property to facilitate appropriate uses as part of the education program.		✓	✓	✓
• Train an EE Specialist in cultural resource education and interpretation. Training could be provided by the Service's cultural resource team members.			✓	✓

Rationale for preferred objective and strategies:

The Refuge has several known prehistoric sites, at least 38 farmsteads, and two rural schoolhouse sites. More sites will likely be discovered in coming years. Most cultural resources are not renewable. The education and interpretation of cultural resources can instill a conservation ethic among the public and others who encounter or manage them.

OBJECTIVE 7E. INCREASE COMMUNITY SUPPORT: With partners, increase community support and appreciation for the Refuge, its purpose and management programs, focusing particularly on adjacent landowners, Cheney community groups and leaders, and Spokane County community groups and leaders, to accomplish the following:

- Outreach themes shall focus on wildlife, habitat and conservation needs of Channeled Scablands ecosystem.
- Outreach efforts shall incorporate practical conservation advice and tips and information at every opportunity. Examples: how to conserve water at home or build a nest box for bluebirds may be an appropriate outreach topic for a general audience, while how to enroll in the Wetlands Reserve Program may be an appropriate topic for landowner audience.
- The Refuge shall hold at least *six face-to-face outreach events* to focus audiences annually.
- The Refuge shall hold a booth at a minimum of *three community fairs* or festivals annually.
- The Refuge shall hold at least *four community work days* per year.
- Outreach efforts shall persuade landowners and partners to undertake at least *two conservation projects* annually within the Stewardship Area.
- The Refuge shall establish and maintain a diversity of partnerships within the private sector, with non-governmental organizations, educational institutions, and other government agencies.
- Partners should assist the Refuge in fundraising and providing matching funds where appropriate.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
2 outreach events 2 fairs 4 workdays one conservation project	2 outreach events 2 fairs 4 workdays one conservation project	6 outreach events 3 fairs 4 workdays two conservation projects	8 outreach events 3 fairs 6 workdays three conservation projects

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Hire part-time outreach specialist.			✓	✓
• Designate focus audiences, including at minimum: landowners in the Stewardship Area, community political, economic and social leaders.		✓	✓	✓
• Create portable, lendable outreach presentation tool kit.		✓	✓	✓
• Work with the Friends of Tumbull to create a volunteer speaker's bureau who would speak to groups on behalf of the Refuge.		✓	✓	✓
• Continue recruiting, training, and utilizing volunteers for support of Refuge programs and activities.		✓	✓	✓
• With partners, incorporate evening and weekend programs into the schedule of activities.		✓	✓	✓
• Update and maintain Refuge web page.		✓	✓	✓

Rationale for preferred objective and strategies:

Outreach differs from off-refuge environmental education in one key attribute - outreach has no specific learning objectives while environmental education does. Outreach is also not simply coordination with existing or potential partner agencies or groups. Outreach is complementary to these by targeting

audiences who may not have an expressed interest in the Refuge, but nonetheless may influence the Refuge by their actions or proximity. Outreach efforts have the potential to build understanding, curiosity, and support, especially when geared towards groups that might not have the inclination to actually visit the Refuge. Ultimately, outreach is aimed at building new partnerships and spurring conservation action in the community. We feel communication efforts are an important aspect of conservation and an important component of Refuge management.

OBJECTIVE 7F. PROVIDE VISITOR CONTACT CENTER AND INTERPRETIVE EXHIBIT AREA:

With partners, provide visitor contact and information facilities in conjunction with an interpretive exhibit area within seven years as follows:

- *Staffed visitor contact facilities* provide orientation and a jumping-off point for Refuge wildlife-dependent recreational activities.
- Visitor contact point includes a *small exhibit area* containing quality non-static interpretive materials that increase awareness of the Channeled Scablands ecosystem, the Refuge System, and Turnbull Refuge management practices. Interpretive materials instill a sense of stewardship and environmental ethic.
- Visitor contact center is designed to accommodate persons of all abilities.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
reception area in office	small info point, volunteer staffed as needed.	as above	staffed visitor contact center larger exhibit area new facilities

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Update interpretive prospectus to include Refuge management interpretive themes. Utilize interpretive prospectus to guide exhibit themes.		✓	✓	✓
• Explore diverse funding opportunities for capital improvements.		✓	✓	✓
• Consider new facility or add on to existing facility as funding allows.			✓	✓
• Build new facility.				✓

Rationale for preferred objective and strategies:

At the present time, the Refuge does not have any central interpretive area for the public. This limits the use of the Refuge by those who are constrained by time or physical ability from exploring the trails and viewpoints directly. A staffed central interpretive area will be a strong focus for visitor contacts and will directly advance public understanding of the Refuge and the surrounding ecosystem.

OBJECTIVE 7G. PROVIDE DIVERSITY OF WILDLIFE OBSERVATION VIEWPOINTS, WITH

INTERPRETIVE MATERIALS: Within five years, provide a diversity of permanent wildlife viewing points to the public as follows:

- *Most* viewpoints shall contain high quality interpretive signs or materials that follow Americans with Disabilities Act guidelines. Focused messages on interpretive media should evoke emotion, raise awareness of local ecology, and promote understanding of refuge management practices.
- Include *15* viewpoints inside the Public Use Area and *4* viewpoints along the Columbia Plateau Trail (CPT).
- Include *one* viewpoint inside Refuge at Stubblefield Lake.
- Include *five* viewpoints along local County roads and highways to increase knowledge and enjoyment of casual drive-through visitors and in support of the Watchable Wildlife site and Audubon Important Birding Area designations.
- Design viewpoints to maximize wildlife viewing experiences while minimizing disturbance or impacts to wildlife.
- Establish viewpoints in a diversity of habitats so that visitors can gain greater understanding of the different wildlife and plants inhabiting the Refuge's pine forests, aspen forests, grasslands, and wetlands.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
Interpretive signs only on Boardwalk and CPT viewpoints. Public Use Area - 15 CPT - 4 County Roads - 0 Stubblefield - 0	Most viewpoints have interpretive signs. Public Use Area - 15 CPT - 4 County Roads - 1 Stubblefield - 1	Most viewpoints have interpretive signs. Public Use Area - 16 CPT - 4 County Roads - 4 Stubblefield - 1	Most viewpoints have interpretive signs. Public Use Area - 16 CPT - 4 County Roads - 4 Stubblefield - 1

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Establish interpretive signs at the following locations in the Public Use Area: Swan Pond, Kiosk at Winslow Pool, Kepple Overlook, Blackhorse Lake control structure, Photo Blind at Pine Lake, Wheeler Memorial, Restored Pine area, Kepple Peninsula, North Bluebird Trailhead and Camas Meadow.		✓	✓	✓
• Establish interpretive signs and develop pulloff and short accessible trail to new viewpoint at Upper Turnbull Slough, visible from Cheney-Plaza Road.		✓	✓	✓
• Establish interpretive signs and design an elevated platform at Stubblefield Lake in conjunction with the new loop trail.		✓	✓	✓
• Establish interpretive signs and develop pulloffs on County roads as needed at the following viewpoints visible from County roads: McDowell Lake, Stubblefield view from Cheney-Spangle, and Helm Marsh from Mullinix Road.			✓	✓
• Establish interpretive signs at Cheever Lake (in Public Use Area).			✓	✓
• Maintain the four existing interpretive signs at north end of the Columbia Plateau Trail, south end of the Columbia Plateau Trail, Ballinger Lake, and Long Lake.	✓	✓	✓	✓
• Provide information to visitors about the best techniques for minimizing disturbance to wildlife while observing or photographing wildlife.	✓	✓	✓	✓
• Display photographers ethics guidelines.		✓	✓	✓

• With the help of volunteers, ensure development of three accessible photo blinds at Kepple Peninsula, the East side of Blackhorse Lake, and Long Lake. Retrofit Pine Lake photo blind for accessibility.		✓	✓	✓
• Update and implement interpretive prospectus with the strategies above.		✓	✓	✓
• Consider adding additional viewpoints with interpretive signs if the Refuge acquires additional land.			✓	✓
• Consider adding bolted down aids such as spotting scopes or telescopes to enhance wildlife viewing from certain viewpoints .			✓	✓
• Seek alternative funding sources to support the objective.		✓	✓	✓
• Design new interpretive signs to be easily read from a vehicle.	✓	✓	✓	✓
• Establish vegetative screening at viewpoints where necessary.		✓	✓	✓
• Link interpretive materials to EE and all management programs.		✓	✓	✓

Rationale for preferred objective and strategies:

Part of the Refuge vision is to support visitor education. The Refuge staff sees a prime opportunity to support education of the solitary or casual visitor through the use of interpretive media at the Refuge's outstanding viewpoints. Such interpretive material can greatly enhance visitor ecological understanding, ultimately contributing to their enjoyment of the Refuge and its wildlife.

OBJECTIVE 7H. IMPROVE PUBLIC FACILITIES: Improve visitor infrastructure so as to enhance safety, sanitation, comfort, and access for the visiting public, including citizens with disabilities.

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Improve Refuge signs, vehicle access routes, pullouts and parking in the Public Use Area, using Transportation Equity Act -21 or other available funds.	✓	✓	✓	✓
• Move gate and fee station closer to Cheney Plaza Road.	✓	✓	✓	✓

(Also see strategies under Objectives 7B, 7F, 7G, 7J, and 7I for more information about facilities and access).

Rationale for preferred objective and strategies:

Improvement of Refuge facilities provides an opportunity to enhance the visitor experience and improve visitor compliance with rules. The Refuge also needs to implement current Americans with Disabilities Act (ADA) standards and guidelines and provide a greater diversity of facilities to individuals with disabilities.

OBJECTIVE 7I. EXPAND PEDESTRIAN-ONLY TRAIL NETWORK: Within 10 years, expand and enhance the Refuge pedestrian trail network as follows:

- Designate at least *two* trails for universal access (accessible to current ADA standards).
- Locate all trailheads within the Public Use Area.
- Provide *15.25 miles* of pedestrian only trails with some trail routes of 2 miles or more; provide potential for trail links and more loop trails.
- Provide improved interpretation on some trails and leave other trails as natural as possible.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
two 11.5 miles	two 15.25 miles	two 15.25 miles	two 15.25 miles

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Replace Boardwalk Trail at West Blackhorse Lake with another boardwalk type trail meeting current ADA standards.		✓	✓	✓
• Establish trail to Stubblefield Lake and ensure users do not adversely affect unique qualities of this area by going off trail.		✓	✓	✓
• To minimize disturbance to waterfowl on the lake during peak waterfowl use periods, consider a bypass near Long Lake on the Columbia Plateau Trail, or establish natural screening.		✓	✓	✓
• Monitor number of visitors and visitor use patterns in the Public Use Area, using established sampling techniques.		✓	✓	✓
• Develop four interpretive panels at Winslow Pool		✓	✓	✓
• Prohibit bicycle use on pedestrian trails except possibly Bluebird Trail and Stubblefield Lake Trail.		✓	✓	✓
• Consider adding additional trails if Refuge acquires additional land.			✓	✓

Rationale for preferred objective and strategies:

Many people have expressed a desire for a greater variety of trails and more loop trails. The Service sees an opportunity to provide this at the Refuge. However, trail establishment outside the Public Use Area is not justified at this time, partly because additional trails will be made available within the Public Use Area, and partly because of the need to separate trail users from hunting, which will occur outside the Public Use Area. If the Refuge were to acquire additional lands, more trails could be considered.

OBJECTIVE 7J. SUPPORT COMPATIBLE COLUMBIA PLATEAU TRAIL USE: Support hiking, biking, and equestrian use on the portion of the Columbia Plateau Trail that crosses Refuge land and ensure that trail use remains compatible with Refuge purposes.

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Continue to co-manage the 4.75 mile section of the Columbia Plateau Trail that runs through Refuge land together with the Washington State Parks and Recreation Commission under the parameters of the existing cooperative agreement.	✓	✓	✓	✓
• Every five years, review and update the cooperative agreement for the Columbia Plateau Trail.		✓	✓	✓
• Encourage State to lead effort to plan and develop additional public facilities at the Cheney Plaza intersections with the Columbia Plateau Trail.	✓	✓	✓	✓
• Establish a vault toilet north of Ballinger Lake.	✓	✓	✓	✓
• Place benches at strategic viewpoints and place a sign-in book at the north and south points where the trail enters the Refuge.			✓	✓
• Partner with the State to establish regular and accepted visitor counting techniques so that the Refuge has reliable visitor estimates on this trail.		✓	✓	✓
• Conduct systematic monitoring of trail use to determine patterns of use, degrees of disturbance, and consequences to wildlife, if any.			✓	✓
• In cooperation with the State, consider a variety of tools to prevent trespass and disturbance to key wildlife areas, including vegetative plantings, public education efforts, concentrating use at key facility points (i.e. benches), establishing of bypass trail at Long Lake, or using seasonal closures.		✓	✓	✓

Rationale for preferred objective and strategies:

The Columbia Plateau Trail, built on an abandoned railroad track through the Rails to Trails program, is a new recreational asset for Eastern Washington. When fully complete, it will traverse 130 miles of the state, extending from Ice Harbor Dam on the Columbia River to Fish Lake near Cheney. Because it crosses an area of the Refuge that has been closed to the public for 60 to 70 years, there is no real knowledge of how wildlife using the area will respond. The Service supports the trail and also wants to ensure that trail use remains compatible with Refuge purposes. Continued cooperative management with State Parks and Recreation and ongoing monitoring are the best strategies for achieving this objective.

OBJECTIVE 7K. ESTABLISH A DESIGNATED AND SIGNED BIKE TRAIL LINK: Establish a designated, signed, trail link for biking and hiking between the Columbia Plateau Trail and the Public Use Area via the old Cheney Plaza Highway roadbed within five years.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
---	---	Bike trail connects the Columbia Plateau Trail and the Public Use Area	Bike trail also loops through Public Use Area to Cheney Spangle Road and incorporates bike lanes on Cheney Spangle Road.

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Plan trail in cooperation with Washington Department of Transportation, State Parks and Recreation, and Spokane County.			✓	✓
• Seek joint funding for trail construction.			✓	✓
• Consider paving trail to minimize dust.			✓	✓

Rationale for preferred objective and strategies:

There is value in direct and safe non-motorized access to the Refuge Public Use Area for users coming from Spokane or Cheney. Currently, the most direct and safest route is by way of the Columbia Plateau Trail (CPT); however, there is no clear designated link from the CPT to the Public Use Area on the Refuge. Establishing such a link would enable non-motorized users to leave the CPT near Overpass Pond and travel on a safe route to the Public Use Area. The abandoned Cheney Plaza Highway roadbed is located inside the Refuge to the east of the current Cheney Plaza Highway. Converting this roadbed to a designated bike trail would make bike access to the Refuge much safer as bikes would no longer have to share the actual highway.

OBJECTIVE 7L. PROVIDE A HIGH-QUALITY WATERFOWL HUNT FOR YOUTHS: Initiate a safe, high quality, low-impact *youth waterfowl hunt on the annual State youth hunt weekend*. Emphasize education, possibly requiring a waterfowl identification or natural history class for youths participating in the hunt.

- Safety means: no injuries or safety incidents; 98 percent of all hunters report feeling safe.
- High quality means: uncrowded conditions (hunters spaced at 300 yards or more) and minimal conflicts with other priority public uses.
- Low-impact means: limited vehicle access; designated stationary hunting areas *on the north side of Upper Turnbull Slough*; no boats; and walk- in/walk-out access.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
---	---	as above	general hunt on three days per week waterfowl hunt during State general duck season; north side of Upper Turnbull Slough and south side of West Tritt Lake.

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Publish Hunting Plan and Federal Register Notice before first hunt season.			✓	✓
• Manage hunt in cooperation with State.			✓	✓
• Ensure that one full-time or two collateral duty law enforcement officers are monitoring the hunt on each hunting day.			✓	✓
• Enforce maximum of 25 shells per hunter, non-toxic shot only			✓	✓
• Thoroughly evaluate youth waterfowl hunting program after five years			✓	✓
• Consider adding additional hunting areas if Refuge acquires additional land.			✓	✓
• Ensure reasonable accommodation is provided for disabled hunters.			✓	✓

Rationale for preferred objective and strategies:

Some people have expressed interest in the Refuge hosting a waterfowl hunt and the National Wildlife Refuge System Improvement Act requires consideration of all priority public uses during the CCP process. Opportunities for waterfowl hunting at Turnbull NWR are quite limited for several reasons, including loss of habitat and the shift in the waterfowl migration to the west.

Within the upper reaches of the Channeled Scablands where the Refuge is located, fall waterfowl habitat is very limited as a result of extensive drainage of the large, historically permanent wetland sloughs in the early 1900s. Over 70 percent of the wetlands in this area have been drained. The remaining fall habitat occurs on the Refuge and on several deepwater lakes in the vicinity of the Refuge. These off-Refuge lakes receive intense pressure from recreationists, primarily anglers, but also from a few waterfowl hunters where hunting is allowed.

As a result of the extensive drainage of fall migration habitat in the Refuge vicinity and extensive development of irrigation wasteways and agriculture in the central Columbia Basin, much of the fall waterfowl migration has shifted west of the Refuge. Increases in waterfowl use of the Refuge in the fall during above average precipitation years, however, indicate that restoration of fall migration habitat would likely increase waterfowl populations in this area.

Although nineteen percent of the Refuge is wetlands, many of these wetlands are dry by fall, because of their naturally shallow profiles. Those 800 acres that do still contain water at the onset of waterfowl hunting season are usually open less than one month before freezing. Opening the Refuge to a waterfowl hunt for the one month period before freeze-up would result in decreased use of this habitat by waterfowl. The Service believes, however, that a limited youth hunt, to occur on one weekend (usually in September) per year, can be accommodated and would help the Refuge facilitate hunting as a priority use, as required under the NWRSIA. The Refuge proposes land conservation as a key element of the Preferred Alternative 3. These land conservation actions (see Appendix A) should result in a significant amount of additional wetland habitat protected and restored. If the Refuge can acquire or protect additional fall wetland habitat outside the current boundaries, opening additional acres to waterfowl hunting could be considered as indicated under Alternatives 3 and 4.

OBJECTIVE 7M. INITIATE A HIGH-QUALITY ELK HUNTING PROGRAM: Initiate an annual, safe, high quality, walk-in, limited-entry elk hunting program as follows:

- High quality means: uncrowded conditions, with less than 2 people per square mile, and < 10 percent of hunters report feeling crowded. In addition, at least 80 percent report satisfaction with their hunting experience.
- Walk-in means: vehicles are left in designated parking areas; there is walk- in/walk-out access only; and no motorized or equestrian retrieval is permitted.
- Safe means: no firearm related injuries or safety incidents and 98 percent of all hunters report feeling safe.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
---	as above	as above	as above

Strategies	Alternative			
	1	2	3	4
• Manage annual hunt in cooperation with State. Publish Sport Hunting Plan and Federal Register Notice before first hunt season. Length of season, number of permits issued, and/or seasons offered would vary annually. Season recommendations would be based on an annual assessment of elk damage to Refuge aspen groves and would be developed each year together with Washington Department of Fish and Wildlife. All classes of hunter would be initially considered and the hunt could be targeted at one or more classes if implemented. Potential hunt areas would be separated from areas used by other recreational Refuge users. Special needs for hunters with disabilities would be considered and accommodated as reasonable. Ensure that law enforcement officers are monitoring the hunt on each hunting day.		✓	✓	✓
• Thoroughly evaluate elk hunting program after five years		✓	✓	✓
• Consider adding additional hunting areas if Refuge acquires additional land.			✓	✓

Rationale for preferred objective and strategies:

Some people have expressed interest in the Refuge hosting an elk hunt and the National Wildlife Refuge System Improvement Act requires consideration of all Refuge System priority public uses during the CCP process. For these reasons, as well as because elk browsing is causing damage to aspen habitats, we are proposing to open the Refuge to high-quality elk hunting under the action alternatives. The benefits of an annual, limited-entry hunt for elk would include providing recreation, some population management of the elk sub-herd that uses the refuge, and reduced impacts by elk on aspen and associated shrubs. All of these benefits are consistent with the Refuge Vision and Goals. In addition, an annual limited entry hunt would contribute to the Washington Department of Fish and Wildlife goal for the Hangman sub-herd of the Selkirk elk population, i.e. "Maintain elk numbers that are compatible with local agriculture and suburban expansion." The hunt level would be tied to aspen damage rather than population levels for four reasons: a) the relationship between aspen damage and elk use on Turnbull NWR has been documented by a recent study by Albrecht (2003); b) a specific population objective for the Hangman sub-herd has not been defined; c) the Refuge land area that could accommodate hunting is too small to make a major impact on the sub-herd populations through hunting alone (other tools for managing population tools can be used and are explored more fully in Objective 3E); and d) elk move off and on the Refuge easily and population counts are inherently subject to more variation and potentially inaccurate conclusions.

Hunting, along with other priority public uses of the Refuge System, will also be considered on any newly acquired lands. See also Objective 3E, which addresses other methods of limiting elk damage to aspen habitats.

OBJECTIVE 7N. EXPLORE TURKEY MANAGEMENT / HUNTING OPPORTUNITY: Consider possibility of permitted turkey hunt depending on turkey population trends.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
---	---	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Encourage research to investigate turkey ecology on Refuge.		✓	✓	✓
• Initiate study to explore impact of turkey populations on non-natives.		✓	✓	✓

Rationale for preferred objective and strategies:

Anecdotal evidence suggests that the local turkey population is on the rise. Depending on the population trends and results of studies, the Refuge may be able to support a turkey hunt at some point in the future. Such a hunt would be designed primarily for population management of turkeys to prevent turkey populations from impacting other ground foragers such as sparrows, towhees, bluebirds, or solitaires.

OBJECTIVE 7O. PROTECT WILDLIFE AND HABITAT FROM INCOMPATIBLE PUBLIC USE: Limit human disturbance and habitat degradation as much as possible. Keep off-trail use restricted.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
--	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Monitor use levels by activity and evaluate impacts of increased human uses on the Refuge. Using established visitor counting techniques, prepare seasonal activity estimates for visitors by type of use and location.			✓	✓
• Ensure public is aware that the Refuge is day use only and that dogs must be kept on a leash at all times.		✓	✓	✓
• Prohibit the following non-wildlife dependent uses: snowmobiling, dogsledding, off-road vehicle use, concerts, camping, military training activities, orienteering, boating, animal/dog training or trials, swimming, collecting, ice-skating, team sports, sport training, pet abandonment or unauthorized introductions of wildlife. In addition, prohibit fishing (a wildlife-dependent use) as no suitable fishery exists on the Refuge.		✓	✓	✓
• Discourage the following non-wildlife dependent uses: weddings, ash dispersal, and large public events not oriented towards wildlife education.		✓	✓	✓

• Further investigate disturbance effects with on-site studies. Develop a protocol for monitoring impacts to habitats at EE sites.			✓	✓
--	--	--	---	---

Rationale for preferred objective and strategies:

Laws and policy encourage wildlife-dependent recreation on National Wildlife Refuges, as long as the activities remain compatible with the Refuge purposes. There is a clear need to monitor both the degree and type of human activity on the Refuge as well as any effects this may currently or in the future have on wildlife. This data will be critical in the design of adaptive management strategies, if needed, to refine programs and minimize wildlife disturbances.

GOAL 8:

Encourage and support research and monitoring that substantially contributes to our understanding of the natural and cultural resources of the Channeled Scablands ecosystem.

OBJECTIVE 8A. ENCOURAGE APPLIED RESEARCH: Ensure ongoing, high quality, applied research on the Refuge that contributes to questions of particular refuge management interest as follows:

- Encourage the initiation of at least one graduate or senior-thesis level research project from the Refuge research needs list each year.
- Refuge staff shall review each proposal to ensure that permitted research projects minimize potential for cumulative impacts with other studies and activities; are compatible with refuge purposes; and have undergone peer review.
- Limit research activities outside the Turnbull Laboratory for Ecological Studies site to no more than six per year.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
--	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
• Collaborate annually with Eastern Washington University and other institutions.	✓	✓	✓	✓
• Prepare a summary of the Refuge proposal review process and distribute to key institutions and departments.		✓	✓	✓
• Ensure that any research activity with the potential to impact listed species receives a Section 7 review under the Endangered Species Act.				
• Seek additional funding from internal or external sources to support at least one quality, in-depth study per year.		✓	✓	✓
• Update and share the Refuge research needs list annually.	✓	✓	✓	✓

Rationale for preferred objective and strategies:

Through the years, Turnbull NWR and Eastern Washington University have enjoyed mutual benefit from a close association. The Refuge gains serious research which expands the biological knowledge base at the Refuge and enhances the professionalism of the biological program. The University gains a field site and a place for their laboratory. The Service wishes to continue this close association, under guidelines that will ensure research remains compatible and helps fill Refuge management data gaps.

OBJECTIVE 8B. MONITOR WILDLIFE AND HABITATS: Continue monitoring of wildlife habitats and populations to validate and evaluate population responses to Refuge habitat management.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
as above	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> Continue to implement the Refuge Habitat Management Plan biological monitoring plan. Develop and implement an objective driven habitat monitoring program capable of evaluating the effectiveness of management strategies in achieving habitat objectives. Develop habitat monitoring procedures that measure conditions and variables identified in habitat objectives (see HMP Table 10). 	✓	✓	✓	✓
<ul style="list-style-type: none"> Develop and implement wildlife monitoring procedures to document population trends of key indicator species in order to evaluate the effectiveness of management strategies and the validity of habitat objectives. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Continue participation in national monitoring programs for neotropical migratory landbirds, amphibians, marshbirds, and waterfowl. 	✓	✓	✓	✓
<ul style="list-style-type: none"> Hire additional permanent full time biologist 			✓	✓
<ul style="list-style-type: none"> Hire <i>two</i> additional biological technicians to aid in monitoring work. 	1	1	2	3

Rationale for preferred objective / strategies:

Monitoring data and information provides critical support to Refuge resource management and contributes to the Service's ability to modify management practices as needed. This is the cornerstone of adaptive management.

OBJECTIVE 8C. IMPLEMENT A PROACTIVE CULTURAL RESOURCES PROGRAM: Implement a proactive cultural resource management program that focuses on meeting the requirements of the National Historic Preservation Act, including consultation, identification, inventory, evaluation, protection, and monitoring of cultural resources.

Alt 1	Alt 2	Alt 3 (preferred)	Alt 4
as above	as above	as above	as above

<i>Strategies</i>	<i>Alternative</i>			
	1	2	3	4
<ul style="list-style-type: none"> Identify archaeological sites that coincide with existing and planned roads, facilities, public use areas, and habitat projects. Evaluate threatened and impacted sites for eligibility to the National Register of Historic Places. Prepare and implement activities to mitigate impacts to sites as necessary. 	✓	✓	✓	✓

• Develop a GIS layer for cultural resources that can be used with other GIS layers for the Refuge, yet contains appropriate locks to protect sensitive information.		✓	✓	✓
• Develop partnership with the Tribes for cultural resources inventory, evaluation, and project monitoring, consistent with cultural resource regulations.		✓	✓	✓
• Develop relationships with educational institutions, historical societies, and other preservation partners for the inventory, evaluation, and monitoring of cultural resources at the Refuge.	✓	✓	✓	✓

Rationale for preferred objective and strategies:

Various federal historic preservation laws and regulations require the Service to implement the kind of program described under this objective. Inattention to these responsibilities may obstruct the Refuge in its other land, habitat, and wildlife management efforts.